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C3-36417(Del.)

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Report/Section

D. Facet

RADIOACTIVE FALL-OUT FROM
ATOMIC BOMBS

of

by

LT COL N.H. LULEJIAN

From
B-36417

NOVEMBER 1953

HEADQUARTERS
AIR RESEARCH & DEVELOPMENT COMMAND
BALTIMORE, MD.

Declassified with deletions September 29, 1959.

TABLE I

PERCENTAGE RADIOACTIVE FALL-OUT WITHIN 200 MILES OF GROUND ZERO

TEST OPERATION	SHOT NO.	SHOT NAME	SHOT DATE	YIELD IN KT	BURST HEIGHT ABOVE TERRAIN (d)	CALCULATED MAXIMUM FIREBALL DIAMETER (d) ^R (f) ^P plus (ft)	DOSE RATE		PERCENTAGE FALL-OUT		TOTAL	P P _s
							AT GROUND ZERO AT H+1 HOURS	MAXIMUM DOSE RATE DOWNWIND	FROM CLOUD STEM (P _s)	FROM CLOUD MUSH- ROOM (P _m)		
T/S	1	ABLE	1 Apr 52	1.06	793	188	1.0r/hr	0.001r/hr	---	---	* 1%	---
T/S	2	BAKER	15 Apr 52	1.15	1109	193	1.2	0.07	---	---	"	---
T/S	3	CHARLIE	22 Apr 52	30	3447	572	0.1	0.02	---	---	"	---
T/S	4	DOG	1 May 52	19.6	1040	497	550**	0.015	---	---	"	---
T/S	5	EASY	7 May 52	11.8	300	420	3000	2	---	---	24%	---
T/S	6	FOX	25 May 52	11.4	300	415	3000	6	---	---	17	---
T/S	7	GEORGE	1 Jun 52	13.8	300	442	>3000	6	---	---	13.5	---
T/S	8	HOW	5 Jun 52	14	300	445	2000	1.5	---	---	7.6	---
U/K	1	ANNIE	17 Mar 53	17	300	474	>4000	2.5	21.4%	3.2%	24.6%	0.15
U/K	2	NANCY	24 Mar 53	26	300	545	3000	4.5	10	3.1	13.1	0.31
U/K	3	RUTH	31 Mar 53	0.3	300	123	>10	0.003	---	---	* 1%	---
U/K	4	DIXIE	6 Apr 53	11	6150	410	0.1	0.001	---	---	"	---
U/K	5	RAY	11 Apr 53	0.3	100	123	2 to 20	0.03	---	---	>15%	---
U/K	6	BADGER	18 Apr 53	26	300	545	3000	2.5	15.5	4.5	20%	0.29
U/K	7	SIMON	25 Apr 53	50	300	678	---	6	15.4	5	20.4	0.3
U/K	8	ENCORE	7 May 53	26	2420	545	0.15	0.01	---	---	* 1%	---
U/K	9	HARRY	19 May 53	31	300	578	---	5	12.6	5.3	17.9	0.4
U/K	11	CLIMAX	4 Jun 53	65	1334	740	---	0.1	---	---	* 1%	---

* Estimated to be less than 1% (not measured data)

** High Neutron Flux from this Device

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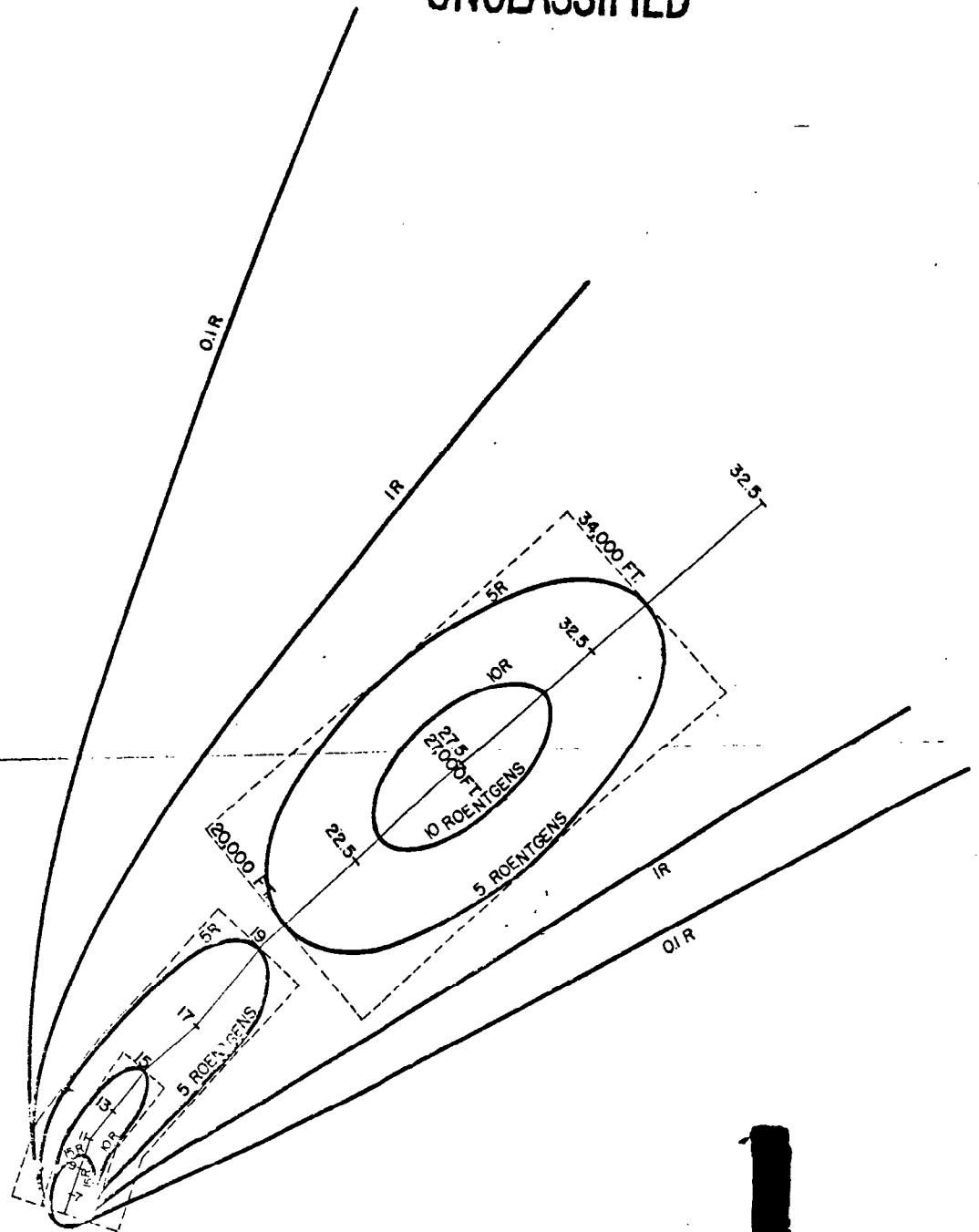
TABLE II

RATE OF GROWTH OF ATOMIC CLOUDS

SHOT	RATE OF GROWTH Where Z_s , X_s and A_s are the length, width and cross-sectional area of the stem, and Z_m , X_m , and A_m are the same parameters for the mushroom and t is time after detonation in hours.		
	STEM GROWTH	MUSHROOM GROWTH	
UPSHOT/KNOTHOLE - Annie	10 Z_{st} 7 X_{st} 150 A_{st}	30 Z_{mt} 1.5 X_{mt} 42 A_{mt}	
UPSHOT/KNOTHOLE - Nancy	7 Z_{st} 2 X_{st} 60 A_{st}	6 Z_{mt} 1.5 X_{mt} 50 A_{mt}	
UPSHOT/KNOTHOLE - Badger	6 Z_{st} 2 X_{st} 12 A_{st}	4 Z_{mt} 1.3 X_{mt} 40 A_{mt}	
UPSHOT/KNOTHOLE - Simon	3.3 Z_{st} 1.7 X_{st} 31 A_{st}	6 Z_{mt} 2.2 X_{mt} 83 A_{mt}	
UPSHOT/KNOTHOLE - Harry	10 Z_{st} 5 X_{st} 38 A_{st}	11 Z_{mt} 5 X_{mt} 26 A_{mt}	

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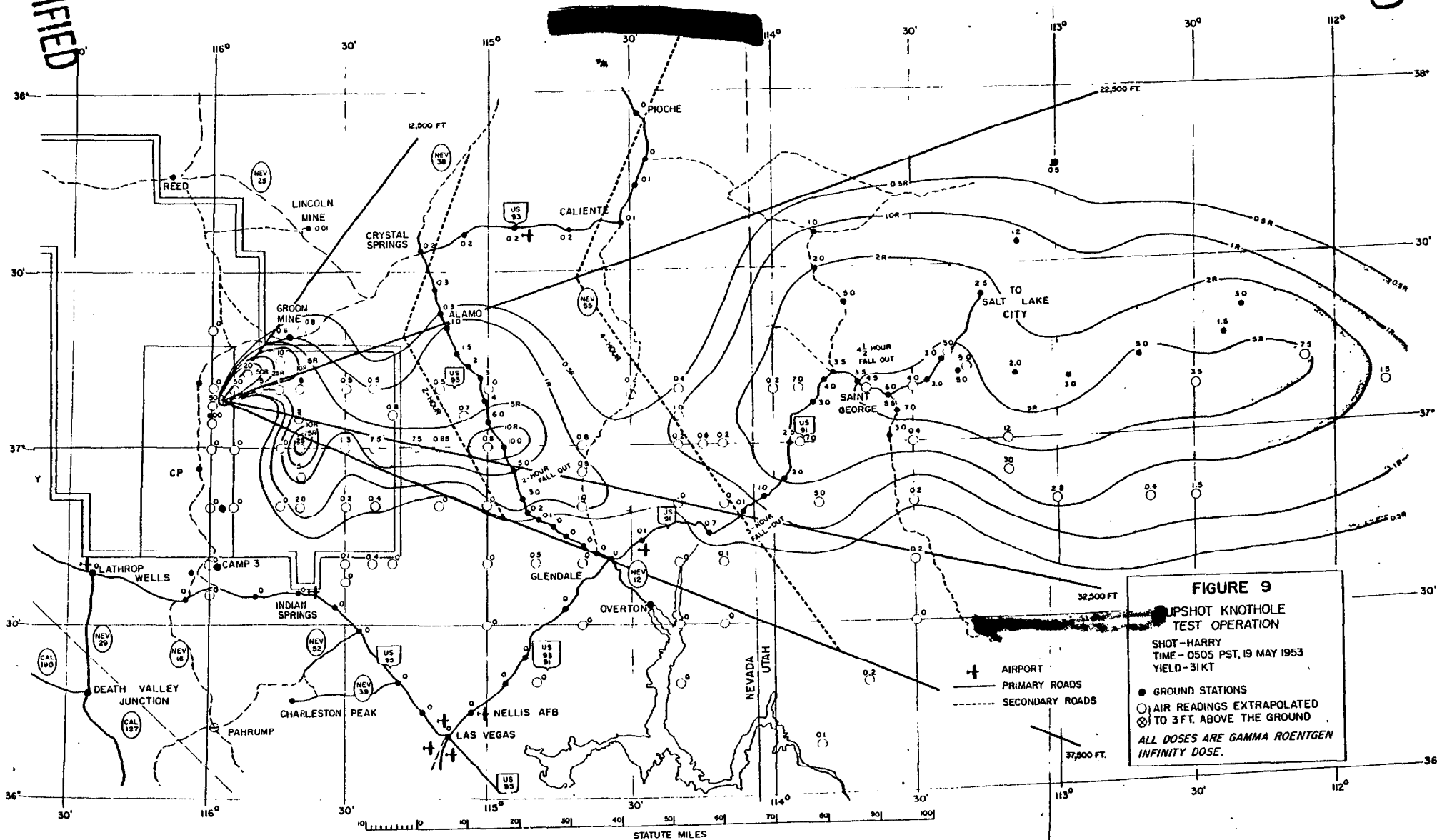
FIGURE 1A
 TUMBLER SNAPPER
 SHOT EASY
 RECONSTRUCTION BASED ON
 H-3 HOUR WINDS (IN ACCORD
 ANCE WITH PAR. XIII OF THIS
 REPORT.)

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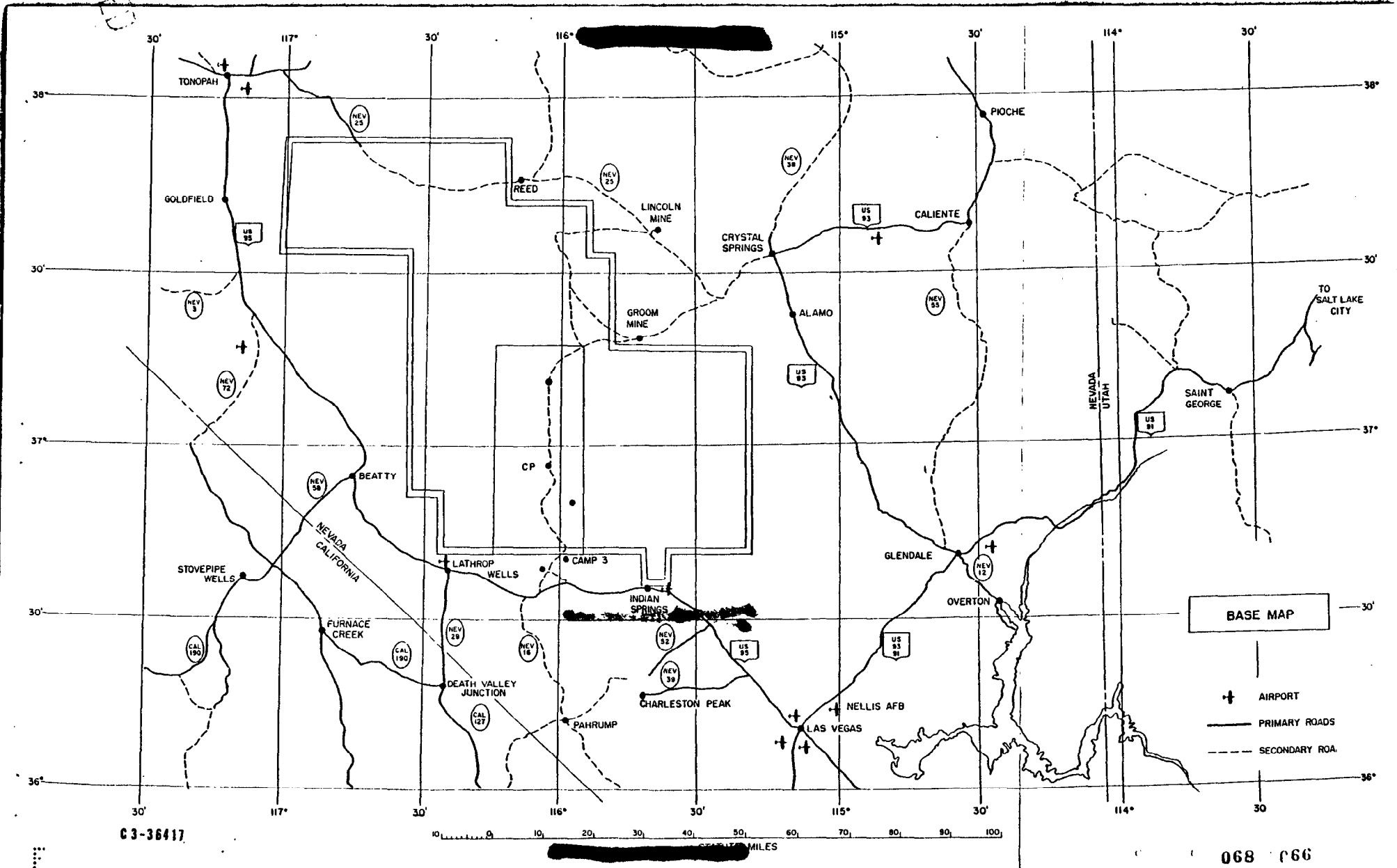
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0 10 20 30 40 50 60 70 80 90 100
STATUTE MILES

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